

## CURRICULUM VITAE

9/4/01

### Neal L. Benowitz, M.D.

Professor

Chief, Division of Clinical Pharmacology

Departments of Medicine, Biopharmaceutical Sciences, and Psychiatry

Schools of Medicine and Pharmacy

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#### EDUCATION:

1962-65	Rensselaer Polytechnic Institute, Troy, NY	—	Physics
1965-69	University of Rochester, School of Medicine Rochester, NY	M.D. (with distinction in research)	Medicine
1969-71	Bronx Municipal Hospital Center, Bronx, NY	Intern/ Resident	Medicine
1971-73	University of California, San Francisco	Research Fellow	Clinical Pharmacology

#### LICENSES AND CERTIFICATIONS:

1971	Medical License, California
1974	Certified, American Board of Internal Medicine
1981	Certified, American Board of Medical Toxicology
1993	Certified, American Board of Clinical Pharmacology

#### PRINCIPAL POSITIONS HELD:

1973-74	University of California, San Francisco	Clinical Instructor Medicine
1974-81	University of California, San Francisco	Assistant Professor of Medicine and Psychiatry
1981-87	University of California, San Francisco	Associate Professor of Medicine and Psychiatry
1987-now	University of California, San Francisco	Professor of Medicine, Psychiatry and Biopharmaceutical Sciences
1983-now	University of California, San Francisco	Chief, Division of Clinical Pharmacology and Experimental Therapeutics
1994-now	University of California, San Francisco	Vice Chair, Dept. of Biopharmaceutical Sciences, School of Pharmacy

**ANCILLARY POSITIONS HELD CONCURRENTLY:**

1974–76	San Francisco General Hospital Medical Center	Director, Drug Detoxification
1979–now	California Poison Control Center, San Francisco	Consultant
1980–now	Northern California Occupational Health Center	Staff
1983–now	University of California, San Francisco	Director, Postdoctoral Fellowship Training Program in Clinical Pharmacology and Experimental Therapeutics
1999–now	UCSF Comprehensive Cancer Center	Co-Leader, Tobacco Control Program

**HONORS AND AWARDS:**

1968	Alpha Omega Alpha
1988	American Society for Clinical Investigation
1988	Kaiser Award for Excellence in Teaching, Honorable Mention, University of California, San Francisco
1993	Association of American Physicians
1994, 1995, 1996, 1998, 1999	Best Doctors in America, Clinical Pharmacology
1994	National Institute on Drug Abuse MERIT Award (Method to Extend Research in Time)
1996–97	President, Society for Research on Nicotine and Tobacco
1996–97	President, American Society for Clinical Pharmacology and Therapeutics
1996	Ove Ferno Award (for outstanding contributions to research on nicotine and tobacco)
1996	Alton Ochsner Award Relating Smoking and Health
1997	American Thoracic Society Presidential Commendation
1999	Rawls Palmer Progress in Medicine Award, American Society for Clinical Pharmacology and Therapeutics

**NAMED LECTURESHIPS:**

1986	University of Queensland Visiting Research Professor of Medicine
1994	University of North Carolina/Glaxo Joint Seminar in Pharmaceutics and Clinical Pharmacology
1995	Annual Lecturer, American Association of Forensic Sciences
1995	Mayo Clinic Distinguished Lecturer in Medical Sciences
1995	Master Lecture, Society for Research on Nicotine and Tobacco
1996	Visiting Professor in Clinical Pharmacology, Jefferson Medical College
1996	Lectureship in Clinical Pharmacology and Therapeutics, Ada Canyon Medical Education Consortium and Veterans Affairs Medical Center, Boise
1997	Pfizer Visiting Professorship in Clinical Pharmacology, Uniformed Services University of the Health Science
1999	William Au Visiting Professorship in Clinical Pharmacology, State University of New York Health Science Center at Syracuse
2000	First Tennessee Visiting Professor Lectureship, University of Tennessee, College of Pharmacy
2000	Lichfield Lecturer in Clinical Medicine, Oxford University

**MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS:**

Academy of Behavioral Medicine Research  
 American Board of Medical Toxicology  
 American Federation for Clinical Research  
 American Heart Association, Council on Hypertension  
 American Society for Clinical Investigation

American Society of Clinical Pharmacology and Therapeutics  
 American Society for Pharmacology and Experimental Therapeutics  
 Association of American Physicians  
 California Thoracic Society  
 Society for Research on Nicotine and Tobacco  
 Western Association of Physicians  
 Western Society of Clinical Research

### **PROFESSIONAL ACTIVITY:**

#### **PROFESSIONAL ORGANIZATION ACTIVITIES:**

1979-81	Research Society on Alcoholism	Program Committee
1981-now	American Heart Assn, California Affiliate	Fellowship and Grant Study Sections
1982-84	American Society for Clinical Toxicology	Abstract Reviewer
1982-84	American College of Cardiology	Abstract Reviewer
1984-85	American Society for Clinical Pharmacology and Therapeutics	Membership Committee
1985-86	Council on Clinical Pharmacology	
1985-88	California Lung Association	Member, Working Group on Accreditation of Clinical Pharma- cology Training Programs Committee on Smoking, Representative of California Thoracic Society
1986-87	American Society for Clinical Pharmacology and Therapeutics	Committee on Alcohol and Drug Dependence
1987-94	American Society for Clinical Pharmacology and Therapeutics	Scientific Program Committee Nominating Committee Medical Education Committee Steering Committee on Substance Abuse
1987	American College of Physicians, Medical Knowledge Self-Assessment Program	Clinical Pharmacology Committee Member
1989-90	American Society for Clinical Pharmacology and Therapeutics	Vice President
1990-91	American Society for Clinical Pharmacology and Therapeutics	Scientific Program Vice Chairman Scientific Program Committee Chairman
1991-now	American Society for Clinical Pharmacology and Therapeutics	Member, Board of Directors
1992-1995	American Society for Clinical Pharmacology and Therapeutics	Chair, Committee on Substance Abuse
1996-97	American Society for Clinical Pharmacology and Therapeutics	President
1996-97	Society for Research on Nicotine and Tobacco	President
1996-97	Western Association of Physicians	Councilor
1996-now	American Board of Clinical Pharmacology	Member
1995-98	American Society for Pharmacology and Experimental Therapeutics, Clinical Pharmacology Executive Committee	Member
1998-2000	American Board of Clinical Pharmacology	Board of Directors

## SERVICE TO PROFESSIONAL PUBLICATIONS:

Editorial Board:	American Journal of Medicine	Drug Safety
	Archives of Environmental Health	Drug Therapy
	Cardiovascular Drugs and Therapy	Journal of Smoking Related Disorders

### Ad hoc referee for:

Addiction	Experimental and Clinical Psychopharmacology
American Journal of Cardiology	Health Psychology
American Journal of Clinical Nutrition	Hypertension
American Journal of Emergency Medicine	Int Journal of Occupational and Environmental Health
American Journal of Epidemiology	Int Journal of Tuberculosis and Lung Disease
American Journal of Hypertension	Journal of Acquired Immune Deficiency Syndromes
American Journal of Kidney Diseases	Journal of the American College of Cardiology
American Journal of Medicine	Journal of the American Medical Association
American Journal of Obstetrics and Gynecology	Journal of Analytical Toxicology
American Journal of Public Health	Journal of Cardiovascular Pharmacology
American Journal Respiratory and Critical Care Med.	Journal of Clinical Investigation
American Rev. Respiratory and Critical Care Medicine	Journal of Clinical Psychopharmacology
Analytical Biochemistry	Journal of Consulting and Clinical Psychology
Annals of Behavioral Medicine	Journal of Infectious Diseases
Annals of Emergency Medicine	Journal of Investigative Medicine
Annals of Epidemiology	Journal of the National Cancer Institute
Annals of Internal Medicine	Journal of Occupational Medicine
Archives of Environmental Health	Journal of Pharmaceutical Sciences
Archives of General Psychiatry	Journal of Pharmacokinetics and Biopharmaceutics
Archives of Internal Medicine	Journal of Pharmacology & Experimental Therapeutics
Biochemical Pharmacology	Journal of Toxicology-Clinical Toxicology
Biological Psychiatry	Kidney International
Biomarkers	Laboratory Investigation
British Journal of Addiction	Life Sciences Journal
British Journal of Clinical Pharmacology	Mayo Clinic Proceedings
Canadian Journal of Clinical Pharmacology	Medical Letter
Cancer Letters	Metabolism
Cardiovascular Drugs and Therapy	Naunyn-Schmiedeberg's Archives of Pharmacology
Chemical Research in Toxicology	New England Journal of Medicine
Chest	Nicotine and Tobacco Research
Circulation	Pediatrics
Clinical Chemistry	Pharmaceutical Research
Clinical Drug Investigation	Pharmacology, Biochemistry and Behavior
Clinical Pharmacokinetics	Pharmacogenetics
Clinical Pharmacology and Therapeutics	Physiology and Behavior
CNS Drugs	Preventive Medicine
Digestive Diseases and Sciences	Psychopharmacology
Drugs	Psychosomatic Medicine
Drug Investigation	Risk Analysis
Drug Metabolism and Disposition	Southern Medical Journal
Drug Safety	Tobacco Control
Drug and Alcohol Dependence	Toxicology and Applied Pharmacology
European Journal of Clinical Pharmacology	Transactions on Biomedical Engineering
European Journal of Epidemiology	Western Journal of Medicine
European Journal of Pediatrics	Xenobiotica
European Journal of Pharmaceutical Sciences	

## OTHER PROFESSIONAL SERVICE:

1975-76	San Francisco Coordinating Council for Drug Abuse	Member
1976-77	State of California Alcohol Research Center, Biomedical Research Advisory Panel	Member
1980-now	California Research Advisory Panel, Therapeutic Use of Marijuana Trial, San Francisco, CA	Consultant
1981	Institute on Medicine, Committee on Health Hazards of Marijuana, New York, NY	Consultant
1982-now	U.S. Department of Labor, Workers Compensation Program	Consultant in Medical Toxicology
1982-84	National Institute on Drug Abuse	Ad hoc Grant Reviewer
1983	National Institute on Aging	Ad hoc Site Visitor
1983	U.S. Federal Trade Commission	Grant Reviewer
1984	San Mateo County Medical Association	Expert Testimony
1985-94	Department of Veterans Affairs	Lecturer on Passive Smoking and Health
1985	Addiction Research Foundation of Toronto	Ad hoc Grant Reviewer
1986	U.S. Surgeon General's Advisory Committee on the Health Consequences of Smokeless Tobacco	Ad hoc Grant Reviewer
1986	U.S. Surgeon General's Report on Health Consequences of Cigarette Smoking: Health Effects of Involuntary Smoking	Technical Consultant (Chapter author)
1986-87	Clove Cigarette Scientific Advisory Board Dept of Health Services, State of California	Contributing Author
1987	Visiting Professor of Clinical Pharmacology, Shanghai Medical University	
1987	U.S. Surgeon General's Report on Smoking and Health: Nicotine Addiction	Scientific Editor
1987	General Clinical Research Centers, NIH	Ad hoc Reviewer
1987	National Institute on Dental Research	Ad hoc Reviewer
1988	National Cancer Institute	Special Study Section
1988-92	Pharmacology Study Section, National Institutes of Health	Member
1992	Workshop on the Health Effects of Environmental Tobacco Smoke, California Environmental Protection Agency and California Air Resources Board	Invited Speaker
1992	University of Minnesota, Substance Abuse Program	Consultant
1990-93	U.S. Protection Agency Science Advisory Board (Passive smoking)	Member
1991-95	San Francisco Substance Abuse Treatment Research Unit	Science Advisory Group
1992-96	Collaborative European Antismoking Evaluation (CEASE Trial)	Member
1992-94	Kabi-Pharmacia Pharmaceutical Company	Scientific Committee
1993-95	Stiftung für Verhoften und Umwelt (Foundation for Behavior and Environment, Munich)	Scientific Advisory Board
1994	Israel Science Foundation	Ad hoc Grant Reviewer
1994	National Institute on Drug Abuse	Ad hoc Grant Reviewer
1993-95	UCSF AIDS Clinical Research Center	Ad hoc Grant Reviewer
1993-94	Institute of Medicine, Committee on Preventing Nicotine Addiction in Children and Youths	

1994	National Cancer Institute, Ad Hoc Committee of President's Cancer Fund — Conference on: The FTC Method for Determining Tar, Nicotine and Carbon Monoxide Levels in Cigarettes	Invited Speaker
1994–95	U.S. Occupational Safety and Health Administration	Consultant/Expert Testimony
1994–95	U.S. Food and Drug Administration	Consultant
1996–2005	United States Pharmacopeia, Clinical Toxicology and Drug Abuse Expert Advisory Panel	Member
1995	National Institute on Drug Abuse	Special Study Section
1996	Canada's Expert Committee on Cigarette Modifications	Member
1994–now	Merck–Medco Managed Care, Pharmacy and Therapeutics Committee	Member
1996–98	Acute Myocardial Infarction and Use of Nicotine Patches Study	Scientific Advisory Board
1997	United Nations Conference on Trade and Development, Round Table on Social and Economic Aspects of Reduction of Tobacco Smoking by Use of Alternative Nicotine Delivery Systems, Geneva	Speaker
1977	Johns Hopkins University Workshop on Environmental Tobacco Smoke	Speaker
1998	U.S. Surgeon General's Report on Tobacco Use Among U.S. Racial/Ethnic Minority Groups	Contributing Author
1998	University of Chicago, External Reviewer of Committee on Clinical Pharmacology	
1998	Canada Expert Committee on Cigarette Toxicity Reduction	Member
1999, 2001	NCI Cancer Center Program	Site Visitor/Grant Reviewer
2000–2001	Institute of Medicine, Committee to Assess the Science Base for Tobacco Harm Reduction	Consultant
2000–2001	Society for Research on Nicotine and Tobacco and World Health Organization Treatobacco.net Project (Web-based Smoking Cessation Database)	Chair, Safety Section
2001	Imperial Cancer Research Fund (UK)	Program Reviewer, London and Oxford
2001	U.S. Surgeon General's Report on Women and Smoking	Contributing Author
2001	Committee on Health, California State Senate — Testimony on Health Hazards of Dietary Supplements	

## SCIENTIFIC AND PROFESSIONAL MEETINGS & WORKSHOPS ATTENDED:

### INTERNATIONAL

4th International Catecholamine Symposium, Asilomar, CA, 1979

Workshop on Measurement Issues in Cigarette Smoking Research, National Cancer and Drug Abuse Institutes, Bethesda, MD, 1982, Invited Speaker

5th World Conference on Smoking and Health, Winnipeg, Canada, 1983, Invited Speaker

2nd World Conference on Clinical Pharmacology and Therapeutics, Washington DC, 1983

Anglo-American Workshop on Clinical Pharmacology, Airlie, Virginia, 1984

4th Scarborough Conference on Preventive Medicine: Current Clinical Issues in Smoking and Health, Scarborough, Maine, 1984, Invited Speaker

World Congress on The Pharmacologic Treatment of Tobacco Dependence, New York, NY, 1985, Invited Speaker

International Symposium on Tobacco Smoking and Health: A Neurobiologic Approach, Lexington, Kentucky, 1985, Invited Speaker

Independent Scientific Committee on Smoking and Health Symposium: Nicotine, Smoking and the Low Tar Programme, London, England, 1986, Invited Speaker

Symposium on Nicotine Replacement in the Treatment of Smoking, Bethesda, MD, 1987, Invited Speaker

International Association for Dental Research Symposium on Smokeless Tobacco, Chicago, IL, 1987, Invited Speaker

International Symposium on Nicotine, Gold Coast, Australia, 1987, Invited Speaker

Second Cardiovascular Pharmacotherapy International Symposium, San Francisco, 1987, Invited Symposium Panelist

Nicotinic Receptors in the CNS - Their Role in Synaptic Transmission, Uppsala, Sweden, 1988, Invited Speaker

Third Cardiovascular Pharmacotherapy International Symposium, Kyoto, Japan, 1989, Organizing Committee

Ciba Foundation Symposium: The Biology of Nicotine Dependence, London, 1989, Invited Speaker

European Chemical Society Conference on Nicotine, Visby, Sweden, 1990, Invited Speaker

International Symposium on Nicotine: Effects of Nicotine on Biological Systems - Hamburg, 1990, Organizing Committee and Invited Speaker

Ciba Foundation Symposium: Cocaine: Scientific and Social Dimensions, London, 1991, Invited Speaker

First International Conference on Smokeless Tobacco: Tobacco and Health; Columbus, 1991, Invited Speaker and Session Chairman

Nordic Congress of Lung Diseases, Reykjavik, Iceland, 1992, Invited Speaker

European Respiratory Society Annual Congress, Vienna, 1992, Invited Speaker

European Respiratory Society Annual Congress, Florence, 1993, Invited Speaker

Future Directions in Nicotine Replacement Therapy, Paris, 1993, Invited Speaker

European Respiratory Society Annual Congress, Nice, 1994, Invited Speaker

Collegium Internationale Neuropsychopharmacology, Symposium, Invited Speaker, Washington, 1994

International Congress on Smoking Cessation, Glasgow, Invited Speaker, 1994

International Symposium on Nicotine: The Effect of Nicotine on Biological Systems II, Montreal, Invited Speaker, 1994

Symposium on Nicotine Addiction, Smoking Cessation and Hyperlipidemia; Taipai, Kaosiung, Taiwan, 1995

Workshop on Nicotine as a Therapeutic Agent; Stiftung Immunitat und Umwelt, Frankfurt, Invited Speaker, 1996

European Respiratory Society Annual Congress, Stockholm, Invited Speaker, 1996

International Association for Dental Research, Symposium on Smokeless/Spit Tobacco, San Francisco, Invited Speaker, 1996

European Society of Cardiology Symposium on the Diagnosis and Treatment of Nicotine Dependence, Vienna, Invited Speaker, 1998

International Society for Research on Nicotine and Tobacco Meeting, Copenhagen, Invited Speaker, 1998

WHO Conference on Regulation of Tobacco Products and Tobacco Dependence Treatment Products, Helsinki, Invited Speaker, 1999

European Institute of Oncology, Nicotine Meeting, Milan, Invited Speaker, 2000, 2001

European Association for Clinical Pharmacology and Therapeutics, Odense, Denmark, Invited Symposium Speaker, 2001

## NATIONAL

American Federation for Clinical Research, 1973, 1974, 1980, 1981

American Society for Clinical Pharmacology and Therapeutics, 1973-1981, 1986-2001

American Society for Pharmacology and Experimental Therapeutics, 1975, 1978, 1997

American Association for Clinical Toxicology, 1981, 1983; invited speaker, 1985  
Winter Conference on Brain Research, 1979-81  
American College of Neuropsychopharmacology, Invited Panelist, 1982  
American Psychological Association, Invited Panelist, 1983  
American Heart Association Annual Meeting, 1985  
American Thoracic Society, Invited Panelist, 1985  
American Psychological Association, Invited Address, 1985  
Smoking Relapse Workshop, National Heart, Lung and Blood Institute, Bethesda, Maryland, 1985, Invited Speaker  
Workshop on Effects of Tobacco Smoke on Pulmonary Cells and on Synthesis and Regulation of Pulmonary Macromolecules, National Heart, Lung and Blood Institute, Bethesda, MD, 1986, Invited Speaker  
National Institute of Health Consensus Development Conference on Health Implications of Smokeless Tobacco Use, Bethesda, Maryland, 1986, Invited Speaker  
U.S. Environmental Protection Agency - Center for Disease Control Cotinine Analytical Workshop, Research Triangle Park, NC, 1986, Invited Speaker  
National Cancer Institute Workshop on Biochemical Measures of Tobacco Smoke Exposure, San Francisco, 1986, Invited Participant  
Workshop on Environmental Protection Agency Indoor Air Assessment Document, Boston, 1987, Invited Participant  
American Society for Clinical Pharmacology and Therapeutics, Invited Symposium Speaker, Orlando, 1987  
National Cancer Institute, Workshop on the Treatment of Tobacco Addiction, Bethesda, 1988, Invited Participant  
American Association for Advancement of Science, Symposium Speaker, San Francisco, 1989  
American Psychiatric Association, Symposium Speaker, San Francisco, 1989  
American Society for Clinical Pharmacology and Therapeutics, Workshop on Problem-Based Learning as a Method for Teaching Clinical Pharmacology and Therapeutics in Medical School, San Francisco, 1990, Co-organizer and Speaker  
Center for Indoor Air Research, Workshop on Environmental Tobacco Smoke Generation and Exposure; Baltimore, 1990, Invited Speaker  
Memphis State University and National Heart, Lung, and Blood Institute Workshop on Smoking and Body Weight, Memphis, 1990, Invited Speaker  
American Society for Addiction Medicine, 3rd National Conference on Nicotine Dependence, San Diego, 1990, Invited Speaker  
Johns Hopkins University, Workshop on New Developments in Nicotine Delivery Systems, Baltimore, 1990, Invited Speaker  
National Institute on Drug Abuse Workshop, Drug Craving: Review of the Concept, Baltimore, 1991, Invited Speaker  
American Association of Pharmaceutical Scientists, Annual Meeting; Symposium, Pharmacokinetics of Drug Delivery Through the Skin, Washington, 1991, Invited Speaker  
American Lung Association/American Thoracic Society, Annual Meeting; Symposium, Understanding Cigarette Smoking Addiction from the Molecular Therapy and Behavioral Levels, Anaheim, 1991, Invited Speaker  
National Medical Association, Symposium Speaker, San Francisco, 1992  
American Society for Addiction Medicine, 5th National Conference on Nicotine Dependence, Symposium, Nicotine as a Potential Therapeutic Agent, Seattle, 1992, Invited Speaker  
American Association of Pharmaceutical Scientists, Annual Meeting, Symposium, Time-Dependent Effects on Drug Action, 1992, Invited Speaker  
Society of Behavioral Medicine, Symposium, Use of Transdermal Nicotine Systems with Special Populations, San Francisco, 1993, Invited Speaker  
Johns Hopkins University Workshop: Issues in Smoking Cessation: Who Quits, Who Pays? Washington, Invited Speaker, 1993  
California Society of Addiction Medicine, Invited Speaker, 1993, 1994, 2000



National Institute on Drug Abuse Technical Review: Metabolism, Pharmacokinetics and Pharmacodynamics of Drugs of Abuse, San Diego, Invited Speaker, 1994  
 American Psychiatric Association, Symposium, Caffeine, Invited Speaker, 1994  
 American Association for the Advancement of Science, Symposium: New Advances in Transdermal Drug Delivery, Invited Speaker, 1994.  
 American Society for Clinical Pharmacology and Therapeutics, Featured Lecture, 1995  
 North American Congress of Clinical Toxicology, Annual Meeting, Invited Plenary Speaker, 1995  
 Society for Research on Nicotine and Tobacco, Workshop on Nicotine Safety and Toxicity; Organizer and Speaker, 1995  
 American Society of Clinical Oncology/National Cancer Institute Symposium on Tobacco Addiction, Invited Speaker, 1996  
 Duke University Symposium on Eclipse and the Harm Reduction Strategy, Invited Speaker, 1996  
 American Health Foundation/National Cancer Institute Workshop on the Changing Mortality Rates of Tobacco-Related Disease, Invited Speaker, 1996  
 American Society for Clinical Pharmacology, Symposia on Genetics of Alcoholism and Substance Abuse, Invited Speaker, 1996  
 American Society of Addiction Medicine, National Conference of Nicotine Dependence, Invited Speaker, 1996, 1997  
 American College of Neuropsychopharmacology, Symposium on Controversies in Nicotine and Tobacco Smoking Actions, Invited Speaker, 1996  
 National Institute on Drug Abuse Symposium, San Diego, Invited Speaker, 1996  
 American Association of Addiction Psychiatry, Annual Meeting, Symposium, Invited Speaker, 1996  
 Society for Research on Nicotine and Tobacco, Annual Meeting, 1995-2001  
 State of California Tobacco-Related Diseases Research Program Annual Meeting, 1997, Co-Chairperson  
 National Institute on Drug Abuse Conference, "Addicted to Nicotine: A National Research Forum", Bethesda, Invited Speaker, 1998  
 American Society of Addiction Medicine, National Conference on Nicotine Dependence, Research Roundtable and Invited Speaker, 1998  
 American Society of Addiction Medicine, National Conference on Nicotine Dependence, Research Roundtable and Plenary Speaker, 1999  
 Mayo Clinic Nicotine Dependence Seminar, Invited Speaker, 1999  
 American Association for Cancer Research Annual Meeting, Invited Speaker, 1999  
 American Society of Preventive Oncology Annual Meeting, Invited Speaker, 1999  
 Society for Research on Nicotine and Tobacco Annual Meeting, San Diego, Plenary Speaker, 1999  
 NICHD and Smoke-Free Families National Program, Workshop on the Use of Pharmacotherapies for Smoking Cessation During Pregnancy, Invited Speaker, 1999  
 American Chemical Society Annual Meeting, Invited Symposium Speaker, 2000  
 M.D. Anderson Cancer Center, Cancer Research at the Millennium Symposium, Invited Speaker, 2000  
 American College of Preventive Medicine Annual Meeting, Invited Speaker, 2001  
 American Psychological Association Annual Meeting, Invited Speaker, 2001  
 Society for Behavioral Medicine Annual Meeting, Invited Symposium Speaker, 2001  
 NCI/NIDA Tobacco Harm Reduction Conference, Invited Speaker, 2001  
 NCI/NIDA Workshop on Medication Development for Smoking Cessation, 2001

## REGIONAL

Western Society for Clinical Research, 1978, 1979, 1981  
 Western Regional Meeting, American Association of Pharmaceutical Scientists, 1992, Invited Speaker  
 Western Association of Physicians, 1996, Invited Plenary Speaker

**OTHER INVITED LECTURES**

- 1973–85 California Community Hospitals, numerous lectures on cardiovascular pharmacology, drug abuse and poisoning
- 1980 First North American Conference on the Effect of Disease States on Drug Pharmacokinetics, Vancouver, BC
- 1983 Syntex Pharmaceutical Corp., Palo Alto, CA, Research Seminar
- 1984 Addiction Research Foundation, Ontario, Canada, Research Seminar
- 1984 NIDA Addiction Research Center, Baltimore, MD, Research Seminar
- 1985 University of Arizona, Pharmacology Seminar
- 1985 University of Toronto, Clinical Pharmacology Seminar
- 1986 University of Minnesota, Pharmacology Seminar
- 1986 Uniformed Services University of the Health Sciences, Clinical Pharmacology Seminar
- 1987 University of Queensland; Biochemistry, Pharmacology and Physiology Seminar
- 1987 Shanghai Medical University, Campus-wide Seminar
- 1987 California Department of Health Services, Epidemiological Studies and Surveillance Section, Seminar
- 1987 Schering-Plough Pharmaceuticals, Research Seminar
- 1988 Pharmacia-Leo Pharmaceuticals, Inc., Helsingborg, Sweden, Research Seminar
- 1988 Karolinska Institute, Clinical Pharmacology Seminar
- 1989 American Health Foundation, Valhalla, N.Y., Research Seminar
- 1989 University of Texas, Austin, School of Pharmacy, All-College Seminar Lecturer
- 1989 Veterans Administration Hospital, Boise, Research Seminar
- 1990 Uniformed Services University of the Health Sciences, Research Seminar
- 1990 Ciba-Geigy Pharmaceutical Company, Research Seminar
- 1990 Chicago Medical School, Research Seminar
- 1990 Institute of Pharmacology, University of Milan, Research Seminar
- 1991 Royal Society of Medicine Symposium, Cocaine as a Biological and Medical Problem, London, 1991, Invited Speaker
- 1992 University of California, Davis, Environmental Toxicology Research Seminar
- 1992 Duke University, Pharmacology–Toxicology Seminar
- 1992 University of Minnesota, Pharmacology Research Seminar
- 1992 University of California, Los Angeles, Medical Grand Rounds
- 1992 University of California, Berkeley, Graduate Course on Public Health Practice of Tobacco Control, Invited Lecturer
- 1993 Rush–Presbyterian–St. Luke's Medical Center, Medical Grand Rounds, Chicago
- 1994 University of Utah, Pharmacology and Toxicology Seminar
- 1994 Stanford University, Medical Grand Rounds
- 1995 Jefferson Medical College, Philadelphia, Medical Grand Rounds; Pharmacology Research Seminar
- 1995 Salk Institute of Biotechnology/Industrial Associates (SIBIA), Research Seminar
- 1996 Hennipin County Medical Center, Minneapolis, Medical Grand Rounds
- 1997 University of Ferrara, Italy, Seminar in Program of Excellence in Clinical Pharmacology Series
- 1997 Medical College of Wisconsin, Pharmacology Seminar
- 1997 Indiana University School of Medicine, Medical Grand Rounds
- 1997 Baylor University, Clinical Pharmacology Consortium Seminar
- 1997 University of California, Berkeley, Nutritional Services Seminar
- 1998 Genentech Pharmaceutical Company, South San Francisco, Research Seminar
- 1998 Buck Center for Aging, San Rafael, CA; Public Lecture
- 1998 John Muir Medical Center, Walnut Creek, Medical Grand Rounds (UCSF Community Hospital Outreach Program)
- 1998 University of Texas, M.D. Anderson Cancer Center, Research Seminar
- 1998 National Cancer Institute, Cancer Center Site Visitor/Grant Reviewer

- 1998 University of Sydney, Australia, Invited Speaker
- 1998 University of Cincinnati Psychiatry Grand Rounds
- 1998 Wonderfest 98, San Francisco, Invited Speaker
- 1999 UCSF Biopharmaceutical Sciences Research Seminar
- 1999 Genentech, Inc., Research Seminar
- 1999 University of Colorado Cancer Center, Molecular Epidemiology of Lung Cancer Symposium, Invited Speaker
- 1999 University of Connecticut School of Medicine, Medical Grand Rounds and GCRC Research Seminar
- 2000 St. Jude Children's Research Hospital, Research Seminar
- 2000 Oxford University, Department of Primary Health Care, Research Seminar
- 2000 University of Manitoba School of Medicine, Medical Grand Rounds and Pharmacology Research Seminar
- 2000 Georgetown University School of Medicine, Pharmacology Research Seminar
- 2000 University of Michigan Cancer Center, Research Seminar
- 2001 UCSF Pharmacogenomics Symposium for Clinical Investigators, Speaker
- 2001 Tulane University School of Medicine, Medical Grand Rounds
- 2001 Washington University School of Medicine, Department of Psychiatry Research Seminar

#### POSTGRADUATE AND CONTINUING EDUCATION LECTURES:

- 1975 American Society G.I. Endoscopy Postgrad Course, Acapulco, Mexico
- 1976 Contra Costa Heart Association Postgrad Course, Concord, CA
- 1976 American College of Physicians Postgraduate Course in Hepatobiliary Disease, San Francisco, CA
- 1976 ACP Course in Clinical Pharmacology, San Francisco, CA
- 1976 ACP Northern California Regional Meeting, San Francisco, CA
- 1977 Alta Bates Hospital Continuing Education Program, Berkeley, CA
- 1978 Merritt Hospital, Postgrad Course in Application of Basic Science to Treatment of Heart Disease, Oakland, CA
- 1978 American Academy Family Practice Annual Meeting, San Francisco, CA
- 1981 Northern California Society for Hospital Pharmacists, Daly City, CA
- 1981 Kaiser Hospital, Medical Grand Rounds, San Francisco, CA
- 1981 California Association of Emergency Physicians, San Francisco, CA
- 1982 N.T. Enloe Memorial Hospital, Toxicology Symposium, Chico, CA
- 1985 California Association of Toxicologists
- 1986 Childrens Hospital, Medical Grand Rounds, San Francisco
- 1986 Kaiser Hospital, Medical Grand Rounds, San Francisco
- 1986 Hennepin County Medical Center, Medical Grand Rounds, Minneapolis, MN
- 1987 Santa Clara Valley Medical Center, Medical Grand Rounds, San Jose
- 1987 American College of Chest Physicians, Course in Critical Care
- 1987 Santa Rosa Community Hospital, Medicine Grand Rounds
- 1988 Veterans Administration Hospital, Martinez, Medical Grand Rounds
- 1989 American College of Physicians, Meet the Professor, San Francisco
- 1989 Veterans Administration Hospital, Boise, Medical Grand Rounds
- 1983–1985 American College of Cardiology Course in Advances in Heart Disease, San Francisco
- 1990 American College of Cardiology Course in Advances in Heart Disease, San Francisco
- 1990 American College of Emergency Physicians Symposium, Invited Speaker, Tucson
- 1991 Medical College of Pennsylvania, Advances in the Treatment of the Nicotine Dependent Patient, Palm Springs, 1991, Program Chairman and Speaker
- 1992 Harbor General Hospital, Family Medicine Grand Rounds
- 1992,1995,2000 California Society of Addiction Medicine Review Course
- 1993 Nicotine Replacement and Smoking Cessation: Strategies for Success, Marina Del Rey, Program Co-Chairman and Speaker

- 1993 Laguna Honda Hospital, Special Grand Rounds
- 1993 San Francisco Veterans Administration Medical Center, Medical Grand Rounds
- 1996 UCSF, Laboratory Medicine Grand Rounds
- 1996,1997 San Francisco General Hospital, Medicine, Pediatric Grand Rounds
- 1997 Laguna Honda Hospital, Geriatrics Grand Rounds
- 1998 American College of Cardiology, Advances in Heart Disease, San Francisco
- 1998 Nursing Pain Association Conference on Pain: Negative Effects and Novel Therapies, Speaker

**UNIVERSITY SERVICE:****CAMPUS-WIDE:**

- 1978-82 Committee on Human Research (Vice Chairman, 1979-82)
- 1978-79 Committee on Research
- 1975-now Ad hoc Promotion Committees

**SCHOOL OF MEDICINE:**

- 1979-83 Chairman, House Staff Committee, San Francisco General Hospital
- 1981-82 Educational Policy Committee
- 1975-now Various Faculty Search Committees
- 1987-now Clinical Study Center Advisory Committee
- 1995-now Third and Fourth Year Curriculum Committee
- 1996-1999 Department of Medicine, Promotions Subcommittee Member
- 2000-now Department of Medicine, Promotions Committee
- 2001 Department of Medicine, Compensation Committee

**SAN FRANCISCO GENERAL HOSPITAL:**

- 1975-88 Pharmacy and Therapeutics Committee, Member
- 1988-now Pharmacy and Therapeutics Committee, Chairman
- 1976-77 Utilization Review Committee
- 1978-now Medical Advisory Committee, Bay Area Regional Poison Center
- 1984-88 Credentials Committee
- 1992-94 Research Committee
- 1992-94 Quality Assurance Committee
- 1997-now Chair, San Francisco Community Health Network Pharmacy Council

**TEACHING:****CLINICAL TEACHING:**

- 1975-now Attending Physician, Medical Service, San Francisco General Hospital, 2 months/year
- 1976-84 Basic Clerkship in Medicine (Medicine 110) 56 hours/year
- 1974-now Subspecialty Rounds in Clinical Pharmacology-Toxicology  
(Student and Resident Teaching)
- 1975-now Attending Physician, Cardiology Clinic, half day/week
- 1975-now Numerous medical staff conferences, grand rounds at SFGH, UCSF, VAMC, Mt. Zion

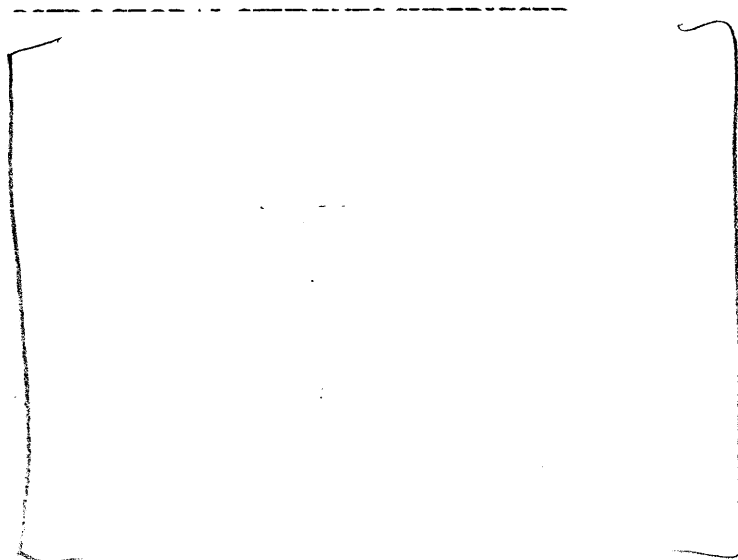
**FORMAL SCHEDULED CLASSES FOR UCSF STUDENTS:**

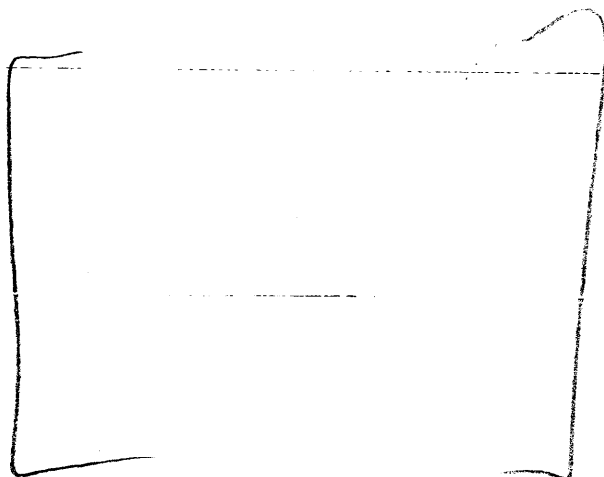
W/S	1981-2000	Pharmacology 130: Toxicology	3 lectures/year	200 students
S/F	1975	Medicine 140: Pathophysiology of Disease - Cardiovascular	2 lectures/course	10 students

S	1984-now	Pharmacology 100B: Pharmacology for Medical Students	2 lectures/year	100 students
S	1987-now	Medicine 140: Pathophysiology of Disease - Clinical Pharmacology	Course organizer 4 weeks/120 hours	40-60 students
F	1999-now	UC Berkeley/ UCSF Pharmacology Course	2 lectures/year	16 students

**POSTGRADUATE COURSES SPONSORED BY UCSF:**

1976	Perspectives in Clinical Pharmacology; Lecturer
1977-86, 1993	Advances in Internal Medicine; Lecturer, Clinical Pharmacology/Cardiology
1979-97	Postgraduate Course on Recognizing and Managing Poisonings and Toxicologic Emergencies; Lecturer and Workshop Leader each year
1980-81	Symposium on Street Drugs; Lecturer (Conference given 3 times — S.F., Tahoe, L.A.)
1983, 1987	Advances in Pulmonary and Critical Care Medicine, San Francisco, CA
1984, 1986	Cancer Prevention - Strategies in the Workplace
1983-93	Occupational Medicine Intensive Residency
1987	Recent Advances in Occupational Cancer
1989	Critical Care Nursing: A Cornucopia of Clinical Issues
1990-92	Pharmacokinetics for Pharmaceutical Scientists
1992	UCSF Hong Kong Postgraduate Course
1992	Chinese Academy of Medical Science/Peking Union Medical College Postgrad Course, Beijing
1991-92	Design and Implementation of Clinical Trials
1992	Primary and Secondary Prevention in Coronary Heart Disease, Speaker and Co-Chairman
1993	Advances in Internal Medicine, San Francisco, Speaker
1993	Primary Care Medicine: Principles and Practice, San Francisco
1995-2001	Occupational and Environmental Medicine, Lecturer
1997	Advances in Emergency Medicine, San Francisco, Speaker
1998	Poisons, Bites and Environmental Toxins: Emergency Management and Treatment, Lecturer
1999, 2000, 2001	UCSF Thoracic Oncology Conference, Invited Speaker
2000	Cannabis Therapy: Science, Medicine, and the Law, Invited Speaker





APPEARS THIS WAY  
ON ORIGINAL

**RESEARCH AND CREATIVE ACTIVITY:****I. ORIGINAL ARTICLES:**

1. N. Benowitz and M. Rowland. Determination of lidocaine in blood and tissues. *Anesthesiol.* 39: 639-641, 1973.
2. N. Benowitz, R.P. Forsyth, K.L. Melmon, and M. Rowland. Lidocaine disposition kinetics in monkey and man. I. Prediction by perfusion model. *Clin. Pharmacol. Ther.* 16: 87-98, 1974.
3. N. Benowitz, R.P. Forsyth, K.L. Melmon, and M. Rowland. Lidocaine disposition kinetics in monkey and man. II. Effect of hemorrhage and sympathomimetic drug administration. *Clin. Pharmacol. Ther.* 16: 99-109, 1974.
4. M.M. Scheinman, A. Weiss, E. Shafton, N. Benowitz, and M. Rowland. Electrophysiologic effects of procaine amide in patients with intraventricular conduction delay. *Circulation* 49: 522-529, 1974.
5. K. Teramo, N. Benowitz, M.A. Heymann, K. Kahanpaa, A. Siimes, and A.M. Rudolph. Effects of lidocaine on heart rate, blood pressure and corticogram in the fetal sheep. *Am. J. Ob. Gyn.* 118: 935-949, 1974.
6. N.L. Benowitz and R.T. Jones. Cardiovascular effects of prolonged oral tetrahydrocannabinol administration in man. *Clin. Pharmacol. Ther.* 18: 287-297, 1975.
7. T.G. Tong, N.L. Benowitz, C.E. Becker, P.J. Forni, and U. Boerner. Phencyclidine poisoning. *JAMA* 234: 512-513, 1975.
8. N.L. Benowitz, R.T. Jones, and C.B. Lerner. Depression of growth hormone and cortisol response to insulin-induced hypoglycemia after prolonged oral delta-9-tetrahydrocannabinol administration in man. *J. Clin. Endocrinol. Metab.* 42: 938-941, 1976.
9. R.J. Lau, D.G. Tubergen, M. Barr, E.F. Domino, N. Benowitz, and R.T. Jones. Phytohemagglutinin-induced lymphocyte transformation in humans receiving delta-9-tetrahydrocannabinol. *Science* 192: 805-807, 1976.
10. K. Teramo, N. Benowitz, M.A. Heymann, and A.M. Rudolph. Gestational differences of lidocaine toxicity in the fetal lamb. *Anesthesiology* 44: 133-138, 1976.
11. N.L. Benowitz and R.T. Jones. Prolonged delta-9-tetrahydrocannabinol ingestion: Effects of sympathomimetic amines and autonomic blockades. *Clin. Pharmacol. Ther.* 21: 336-342, 1977.
12. N.L. Benowitz and R.T. Jones. Effect of delta-9-tetrahydrocannabinol on drug distribution and metabolism: Antipyrine, pentobarbital and ethanol. *Clin. Pharmacol. Ther.* 22: 259-268, 1977.
13. J.C. Ayus, J.F. Eneas, T.G. Tong, N.L. Benowitz, P.Y. Schoenfeld, K.L. Hadley, C.E. Becker, and M.H. Humphreys. Peritoneal clearance and total body elimination of vancomycin during chronic intermittent peritoneal dialysis. *Clin. Nephrol.* 11: 129-132, 1979.
14. J.A. Bachman, N.L. Benowitz, R.I. Herning, and R.T. Jones. Dissociation of autonomic and cognitive effects of THC in man. *Psychopharmacology* 61: 171-175, 1979.
15. N.L. Benowitz, W.K. Rogers, M. Schambelan, and M. Wilson. Adrenergic and cardiovascular effects of disulfiram. In: *Catecholamines: Basic and Clinical Frontiers*, edited by I.J. Kopin and J. Bachras. New York: Pergamon Press, pp. 1536-1538, Vol. 2, 1979.
16. N.L. Benowitz, J. Rosenberg, W. Rogers, J. Bachman, and R.T. Jones. Cardiovascular effects of intravenous delta-9-tetrahydrocannabinol: Autonomic nervous mechanisms. *Clin. Pharmacol. Ther.* 25: 440-446, 1979.
17. S.C. Peeke, R. Prael, R.I. Herning, W. Rogers, N.L. Benowitz, and R.T. Jones. Effect of disulfiram on cognition, subjective responses and cortical event-related potentials in nonalcoholic subjects. *Alcoholism: Clin. Exp. Res.* 3: 223-229, 1979.
18. S.M. Pond, M. Phillips, N.L. Benowitz, R. Galinsky, T. Tong, and C.E. Becker. The pharmacokinetics of diazepam in acute alcohol withdrawal. *Clin. Pharmacol. Ther.* 25: 832-836, 1979.
19. W. Rogers, N.L. Benowitz, J. Abbott, and K.M. Wilson. Effects of disulfiram on adrenergic function. *Clin. Pharmacol. Ther.* 25: 469-477, 1979.

20. N.L. Benowitz, C. Abolin, T. Tozer, J. Rosenberg, W. Rogers, S. Pond, P. Schoenfeld, and M. Humphreys. Evaluation of resin hemoperfusion for ethchlorvynol overdose. *Clin. Pharmacol. Ther.* 27: 236-242, 1980.
21. N.L. Benowitz, R. Byrd, M. Schambelan, J. Rosenberg, and M.F. Roizen. Dihydroergotamine treatment for orthostatic hypotension from Vacor rodenticide. *Ann. Int. Med.* 92: 387-388, 1980.
22. N.L. Benowitz, T.L. Nguyen, R.T. Jones, R.I. Herning, and J. Bachman. Metabolic and psychophysiological studies of cannabidiol-hexobarbital interactions. *Clin. Pharmacol. Ther.* 28: 115-120, 1980.
23. A.B. Fredericks and N.L. Benowitz. An abstinence syndrome follows administration of delta-9-tetrahydrocannabinol in rhesus monkeys. *Psychopharmacology* 71: 201-202, 1980.
24. S.M. Pond, T. Tong, N.L. Benowitz, and P. Jacob III. Enhanced bioavailability of pethidine and pentazocine in patients with cirrhosis of the liver. *Aust. New Zealand J. Med.* 10: 515-519, 1980.
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26. T. Tong, N.L. Benowitz, and M.J. Kreek. Effects of disulfiram on methadone metabolism during methadone maintenance. *J. Clin. Pharmacol.* 201: 506-513, 1980.
27. J.J. Cogan, M.H. Humphreys, C.J. Carlson, N.L. Benowitz, and E. Rapaport. Acute vasodilator therapy increases renal clearance of digoxin in patients with congestive heart failure. *Circulation* 64: 973-976, 1981.
28. A.B. Fredericks and N.L. Benowitz. Cardiovascular and autonomic nervous system effects of chronic delta-9-tetrahydrocannabinol in the conscious rhesus monkey. *J. Pharmacol. Exp. Ther.* 216: 247-253, 1981.
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31. P. Jacob III, M. Wilson, and N.L. Benowitz. Improved gas chromatographic method for the determination of nicotine and cotinine in biologic fluids. *J. Chromatogr.* 222: 61-70, 1981.
32. K.S. Peters, T.G. Tong, K. Kurtz, and N.L. Benowitz. Diabetes mellitus and orthostatic hypotension resulting from ingestion of Vacor rat poison: endocrine and autonomic function studies. *West. J. Med.* 134: 65-68, 1981.
33. S.M. Pond, T. Tong, N.L. Benowitz, P. Jacob III, and J. Rigod. Presystemic metabolism of meperidine to normeperidine in normal subjects and patients with cirrhosis. *Clin. Pharmacol. Ther.* 30: 183-188, 1981.
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